Before The

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

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In the Matter of	)	
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Revision of the Commission's rules to ensure compatibility with enhanced 911 emergency calling systems	)	CC Docket No. 94-102
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To: The Commission

REPLY COMMENTS OF ASSOCIATED RT, INC., A SUBSIDIARY OF THE ASSOCIATED GROUP, INC. ON NOTICE OF PROPOSED RULEMAKING

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SUMMARY

Associated RT, Inc. ("ART") reiterates its strong support for the Commission's efforts to ensure that mobile radio subscribers have the same access as wireline callers to 911 emergency services. The comments make it clear that the implementation of an automatic location information ("ALI") requirement on wireless systems is a critical aspect of achieving this objective. ALI will permit public safety personnel to locate and assist mobile callers in need of emergency help in situations where they do not know their location. In short, ALI will help save lives, and the sooner ALI is implemented, the more lives will be saved.

Some commenters have proposed that the Commission delay the adoption of ALI rules while an industry advisory panel addresses technical and other issues. ART believes that the establishment of an industry advisory panel has merit; however, ART submits that the work of such a panel should be undertaken in parallel with an established ALI implementation schedule. The Commission should reject any approach that would implicitly or explicitly delay the availability of E911 emergency services to wireless subscribers.

ART supports the recommendation contained in the APCO/NENA/NASNA Joint Comments that the Commission establish broad performance goals and let market forces determine which ALI systems become commercially viable. This approach will encourage

industry participants to tailor their specific location systems to meet the needs of the 911 industry, while promoting innovation and more rapid service to the public.

Commenters correctly note that changes to both wireless equipment and PSAPs will be required to realize the benefits of ALI, and that these changes are not without costs. ART estimates that the network based changes (as opposed to cost prohibitive modifications to wireless handsets) necessary to implement ALI will average approximately $20.00 per subscriber. This is easily recoverable in a short period of time from the general body of wireless customers and is a small price to pay for the associated benefits. Moreover, the comments indicate a willingness on the part of the public safety community to make the necessary upgrades to their own equipment take advantage of ALI technology.

ART contends that wireless carriers, who are in a better financial position to bear the initial cost burden than the public safety community, should proceed with the implementation of location systems and make the information available to PSAPs. This solution will help avoid the "chicken and egg" scenario where neither the wireless operator nor the public safety community upgrades their respective systems because of the other's lack of equipment.

Despite the skepticism of certain commenters, ART and others have designed ALI technology that will be able to meet the Commission's goals. In light of the current stage of technical development, any delay in the adoption of an ALI implementation

plan is unnecessary, contrary to the public interest, and should be rejected. In sum, ART urges the Commission to adopt rules that will bring the benefits of ALI technology to the public as soon as possible.

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Pursuant to Sections 1.415 and 1.419 of the Commission's rules,[1] Associated RT, Inc. ("ART"), a wholly owned subsidiary of The Associated Group, Inc. ("Associated"), by its attorneys, herein submits its Reply to Comments filed in response to the Notice of Proposed Rulemaking in CC Docket No. 94-102 ("Notice").[2] ART, an industry leader in cellular telephone location technology, filed Comments in this proceeding on January 9, 1995 ("ART Comments").[3]

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[1] 47 C.F.R. §§ 1.415, 1.419.

[2] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Notice of Proposed Rulemaking, CC Docket 94-102, FCC 94-237, 59 Fed. Reg. 54828 (rel. Oct. 19, 1994).

[3] An "Order Granting Motion For Extension Of Time To File Comments" in this proceeding was adopted February 1, 1995, extending the date for filing replies to March 17, 1995. See DA 95-141 (released February 7, 1995). Accordingly, this Reply is timely filed.

I. INTRODUCTION

The comments filed in response to the Notice uniformly supported the Commission's efforts to ensure the broad availability of 911 and enhanced 911 services,[4] and many commenters specifically discussed the important role that emergency 911 services play in protecting the health and safety of our nation's citizens.[5] In its own comments, ART focused on the Commission's proposals regarding user location information and its compatibility with wireless services. ART urged the Commission to adopt rules requiring wireless operators to make enhanced 911 services such as automatic location information ("ALI") available to mobile radio callers at the earliest feasible date.

ART is encouraged by the large number of commenters, particularly from the public safety community, who recognized the importance of expeditiously implementing the Commission's

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[4] See e.g., Comments of the Cellular Telephone Industry Association at 1 ("CTIA strongly supports the goal of this proceeding, that is, to ensure the broadened availability of enhanced 911 services to users of wireless telecommunications.") (hereinafter "CTIA Comments"). See also, Comments of Nextel Communications, Inc. at 1 ("Nextel supports the Commission's objective of ensuring that 911 capabilities are widely available on wireless telecommunications systems.").

[5] See Comments of Consumers First and the Ad Hoc Alliance For Public Access to 911 at 1-2 ("We applaud the Notice's proposals to improve the usefulness of the 911 service as a tool of public health and safety."). See also, Ameritech at 1 ("The Commission's efforts to ensure the timely and broad availability of emergency calling services are to be applauded .... There is no clearer illustration of the importance of the Commission's statutory mandate to protect the public safety than the task which it has undertaken in this proceeding.").

proposed ALI requirements.[6] In contrast, other commenters have argued that the Commission should delay the implementation of an ALI requirement for mobile service providers. As discussed below, ART believes the objections proffered by these commenters are unpersuasive. The Commission should reject any approach that would implicitly or explicitly delay the availability of E911 emergency service to wireless subscribers. Instead, ART urges the Commission to adopt rules that will bring the benefits of ALI technology to the public as soon as possible.

II. THE COMMENTS DEMONSTRATED STRONG SUPPORT FOR THE ADOPTION OF AN AUTOMATIC LOCATION INFORMATION REQUIREMENT ON WIRELESS SYSTEMS FOR 911 SERVICES

In its Comments, ART supported the Commission's conclusion that wireless systems should have the ability to identify the precise geographic location of a wireless terminal used to make a 911 call.[7] Many commenters pointed out that location information is a critical element in ensuring that mobile radio subscribers have the same access as wireline callers to 911 emergency services. The importance of location information as it relates to emergency service cannot be overstated. For example, the

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[6] See Comments of State of New Jersey at 2 ("The public safety, health and welfare of the nation require that these issues be addressed immediately."). See also, Comments of The 9-1-1 Association of Central Oklahoma Governments at 2 ("We do recognize that several national organizations ... have been trying to address this issue but feel that a national directive from the FCC could speed and simplify the process considerably.").

[7] ART Comments at 2-3.

Georgia Chapter of the National Emergency Number Association remarked that "[l]ocation is the single most significant piece of information in public safety dispatching; without location we can do nothing."[8] In addition, Los Angeles County reported that in 1994 approximately 453,000 cellular 9-1-1 calls were received by the California Highway Patrol in Los Angeles County alone, and "a significant number of these callers indicated that they did not know their location. Clearly, location identification is a necessity."[9]

In joint comments filed by the Association of Public-Safety Communications Officials-International, Inc. ("APCO"), the National Emergency Number Association ("NENA"), and the National Association of State Nine One One Administrators ("NASNA"), ALI was credited with saving

> many lives in situations where the caller was disoriented, disabled, unable to speak, or did not know their location, and needed emergency help. In these situations, 9-1-1 telecommunicators use the address provided by the (E)9-1-1 system to dispatch emergency responder. This allows for virtually immediate dispatch....[10]

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[8]Comments of National Emergency Number Association, Georgia Chapter at 3. See also Comments of City of Marietta, Emergency Communications at 3. ("Knowing the location of a caller or incident is the most significant piece of information in the delivery of public safety services.").

[9]Comments of Los Angeles County at 3 (emphasis added).

[10]See Joint Comments of the Association of Public-Safety Communications Officials-International, Inc. ("APCO"), the National Emergency Number Association ("NENA"), and the National Association of State Nine One One Administrators ("NASNA") at 9 (hereinafter "APCO/NENA/NASNA Joint Comments").

As the Commission is aware, however, the benefits associated with being able to automatically identify a caller's location are not available to mobile subscribers. Today, not one wireless call to 911 can be located. As the number of mobile subscribers continues to skyrocket, the Commission's decision in this rulemaking proceeding takes on particular significance. Simply put, ALI will save lives, and the sooner it is implemented, the more lives will be saved.

As of February, 1995, there are approximately 25 million cellular subscribers, representing 17% of all telephones in use in the United States.[11] While cellular phones now account for only about 1% of all minutes used, as many as 10% of all calls to 911 are placed from mobile phones.[12] In the future, it is clear that the number of wireless 911 calls is going to increase at a proportionately greater rate than wireline calls to 911.

The public safety community has recognized the dire consequences associated with the lack of wireless caller location information and has petitioned the Commission for assistance in solving this problem. The 911 industry previously dealt with this same problem on the landline side, and because of the compelling need for location information, began providing such services on an incremental basis. As some commenters correctly point out, even today the entire United States is still not fully

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[11]See "Communications Daily" at 3 (February 27, 1995) ("Cellular industry commemorated 25 millionth customer ... with ceremony on Capitol Hill....").

[12]See Notice at ¶ 9.

covered with enhanced 911 service.[13] The initial lack of ubiquitous coverage did not justify delay in adopting ALI requirements with respect to landline service, and the approach to supporting enhanced 911 for wireless callers should be the same. The 911 industry would find it quite acceptable if only 20% or 30% of wireless calls were located as a starting point. Coverage can then be increased on an incremental basis so that, over time, virtually all wireless calls will have access to E911 services.

The Commission has routinely embraced gradual implementation as a desirable method of deploying new technology.[14] Cellular telephony itself started with a few cells in each city and grew over a period of years to more complete coverage. The fact that many commenters identified scenarios in which difficult decisions would have to be made regarding support for wireless 911 calls is no reason to delay the roll-out of this needed service to wireless subscribers as quickly as possible.

III. THE COMMISSION SHOULD ADOPT A FIRM ALI IMPLEMENTATION SCHEDULE

Despite the overwhelming evidence supporting the need for the immediate adoption of an ALI requirement, some commenters

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[13] See e.g., CTIA Comments at 4.

[14] See e.g., Section 24.203(a) of the Commission's Rules (requiring that new PCS licensees holding 30 MHz blocks of spectrum provide service to at least one-third of the population in their service area within five years and two-thirds of the population within ten years of being licensed). 47 C.F.R. § 24.203(a).

have suggested a scheme that, as proposed, would likely delay or derail the Commission's efforts. CTIA, and a number of cellular operators, have recommended the formation of an industry advisory panel (agenda and forum to be later determined) to address ALI issues in lieu of Commission action. Specifically, CTIA has proposed that the Commission "eschew the imposition of regulatory requirements"[15] and instead "form an industry advisory committee to address the technical and policy issues associated with wireless 911 services."[16]

As proposed, this industry advisory panel would precede the adoption of Commission rules establishing an ALI implementation schedule. ART believes that this approach will cause an indefinite and unnecessary delay in the deployment of ALI technology. Whereas the Commission's Notice establishes a specific implementation schedule and technical benchmarks, the industry advisory panel plan lacks these crucial elements. Absent firm deployment goals, these issues may be studied and debated well into the next century. Nonetheless, ART believes that the establishment of an industry advisory panel has merit, and with certain modifications discussed below, could prove useful in achieving the goals and objectives set forth in the Commission's Notice.

ART believes that a properly tasked advisory panel could benefit the industry, the Commission and the public. However,

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[15]CTIA Comments at 2.

[16]CTIA Comments at 17.

the creation of such a panel must not delay, nor create a mechanism for delaying, the attempts of various parties to create industry solutions to the identified need. Therefore, ART recommends that the Commission's proposed ALI schedule be maintained and the work of an industry advisory panel undertaken on a parallel track. If the Commission establishes an industry advisory panel, ART would be willing to serve as a member. With its background as a cellular operator and developer of a location system, ART is uniquely positioned to lend its experience to the Commission.

Additionally, ART proposes that the subjects to be examined by an advisory panel be finite and result in specific decisions or recommendations. The choice of technology alternatives is, in reality, very narrow in scope and probably resolvable in a relatively short time.[17] A more complex topic will be the nature of the interfaces between the location systems and the PSAPs because there are far more alternatives to be considered and discussed.

A. The Commission Should Establish Broad Performance Goals And Let Market Forces Determine Which ALI Systems Become Commercially Viable

As outlined in the APCO/NENA/NASNA Joint Comments, the Commission should set broad performance goals and let the market determine which ALI systems will become commercially viable.[18]

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[17] See Section V.A., infra.

[18] See APCO/NENA/NASNA Joint Comments at 41-42.

By limiting its regulation to the adoption of performance guidelines, the Commission will encourage industry participants to tailor their specific location systems to meet the needs of the 911 industry. The technology "winner" will the one that best meets the performance guidelines in an efficient and cost effective manner. Performance guidelines and the resulting "race to the market" among competing vendors will bring innovation and more rapid service to the public.

For example, ART questions the standards process contemplated by the Personal Communications Industry Association ("PCIA"). PCIA currently has up to 15 different air interface standards under consideration.[19] If the standards process were to attempt to consider the creation of all of the necessary technical definition for all 15 air interfaces, the development for any one interface (such as the analog interface with AMPS technology) might grind to a complete halt until all could move in parallel. Some standards are better developed de facto by the marketplace. As a location system developer, ART would only expend its resources for air interfaces in substantial use. The manufacturers' and developers' limited resources should only be deployed where there is sufficient apparent demand for the technology. The Commission should be very careful to avoid interfering, through its process, with the ability and incentive of ART and others to develop solutions for the marketplace.

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[19] See "Wireless Support of 9-1-1 and Enhanced 9-1-1 Emergency Services," Joint Expert Meeting Report (November 2, 1994) at 41-42.

B. The Commission's ALI Implementation Schedule Should Be Tied To The Availability Of Equipment

Many commenters expressed concern that a schedule tied to an arbitrary effective date creates an undue burden on both the developers of location technology and on the carriers responsible for installation of the systems. To address these concerns ART reiterates its suggestion that the effective date of the rules be contingent upon the actual availability of location equipment. As noted below, and in its original comments, ART is currently planning to make its TruePosition location system commercially available on or about July 1, 1996. Accordingly, ART suggests that the Commission simplify its proposed ALI implementation schedule by (1) eliminating stage one; (2) directing wireless services to meet approximate ALI goals not later than three years from the time ALI systems first become commercially available (on or about July 1, 1995); and (3) requiring precise location information capability not later than five years from the time ALI systems first become commercially available (on or about July 1, 1995).[20]

The majority of commenters believe that the Commission's three step ALI implementation schedule is unnecessarily complex, and some have suggested eliminating stage 2, and moving instead directly to stage 3. ART has interpreted stage 2 to provide location in two dimensions (i.e. latitude, longitude) and stage 3 to provide location in three dimensions. As a developer of

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[20] See ART Comments at 15-17.

location technology for over three years, ART would suggest that 2 dimensions is far easier to address and implement. Additionally, no developer is likely to undertake 3 dimensional location technology until sufficient demand had been demonstrated for 2 dimensional systems.[21]

IV. PSAP OPERATORS AND WIRELESS SERVICE PROVIDERS MUST PROCEED IN PARALLEL TO FIND THE QUICKEST SOLUTION TO THE 911 ALI CHALLENGE

CTIA stated that "CMRS providers should not be required to implement ... new features until the PSAP operator is equipped to handle the information to be transmitted by the CMRS provider."[22] The end result of this position would be a continuing lack of E911 capability in wireless networks. The respective 911 and wireless industries need to avoid the classic "chicken and egg" scenario where each uses the other's lack of equipment as the reason not to upgrade its own.

Wireless carriers should proceed with the implementation of location systems and make the information available to PSAPs. Public safety organizations cannot be expected to incur system modification costs prior to mobile service providers. The simple fact is that commercial, for-profit entities are in a better financial position to bear the initial cost burden to which PSAP operators would then adapt. In addition, some of the actual

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[21]The commission may also consider creating a schedule of percentage coverage instead of one date for all. This may be similar to the buildout schedule for cellular and PCS licenses (i.e. x% of population within y years).

[22]See CTIA Comments at 19.

processes and methods may only be perfected through the live implementation and use of the systems.

Absent a commitment from the wireless industry to move forward on its own, leadership from the federal government in general, and the Commission is particular, is necessary to establish a firm timeframe in which wireless subscribers will have access to the same level of E911 service enjoyed by wireline callers.

A. Wireless Equipment

Commenters have correctly indicated that changes to wireless equipment will be required to implement E911 capability. The real issue, however, is minimizing the changes for the benefit of all. Moreover, it should be stressed that such changes and the resulting costs have no bearing on need. Since the need has been established and well documented, the only challenge is finding the most efficient and cost effective means of implementation.

There are only two fundamental options with respect to the implementation of location capability: change the network infrastructure or change the mobile units. If one considers the cost to upgrade the mobile units (25 million units times $200 is $5 billion, if the cost to upgrade were ONLY $200[23]) versus the cost to buildout the United States with incremental network infrastructure (ART estimates the cost at $250 million to $500

[23]Some have estimated the cost of upgrading mobile units to be as high as $300.00 per handset. See Comments of US West at 17.

million[24]), the obvious choice is a network change. As of December, 1994, the cumulative capital investment in the U.S. for cellular infrastructure was $18.9 billion for 25 million subscribers.[25] An incremental $500 million (at the high end) would represent an incremental 2.5%, or $20 per subscriber. ART submits that $20 per subscriber is easily recoverable in a short period of time from the general body of wireless customers who will benefit from E911 services.

B. PSAP Equipment

A number of commenters point out that most E911 PSAPs are not equipped to support location information today. While this is certainly true, it is not surprising. The enhanced 911 systems were designed to conform to an era when this country had few area codes and only landline, "wired" phones. These PSAPs, for example, only transfer 8 digits of information representing 1 of 4 area codes plus the 7 digit local number.

The fact is that 911 operators recognize the need to upgrade their technology - and in all likelihood, they will gladly make the change coincident with required changes for mobile E911.[26]

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[24]This cost estimate is similar to what the cellular industry will spend on Cellular Digital Packet Data ("CDPD") equipment.

[25]See 1994 CTIA Cellular Survey.

[26]A number of PSAP operators have expressed their willingness to take the steps necessary to upgrade existing systems. See e.g., National Emergency Number Association, Georgia Chapter at 3 ("I know of no [PSAP] that currently uses

(continued...)

With the explosion in the use of area codes in the U.S., changes will be required anyway. For example, Los Angeles alone now has more than the 4 area codes supported by the old protocols.

There are current examples of 911 systems that have been actively preparing for the use of location information in their PSAPs. In a recent announcement, Northern Telecom has made available a product called VISIT ENR which is a PSAP that permits display of a cellular caller's location on a digital map.[27] Greater Harris County (Houston) has announced the installation and use of this system.[28] And as disclosed in its comments, the State of New Jersey has also been active in the encoding of cell site and sector information in latitude/longitude format and preparing PSAP displays that reveal this information.[29] In addition, ART is planning a Greater Philadelphia "Beta" Test of its TruePosition™ location system, installation of which is

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[26](...continued)
latitude and longitude for geographical location calculations .... We do however concur that latitude and longitude is a reasonable solution. In order to obtain this crucial location [information] 911 Centers will be willing to work through whatever conversion process that is necessary to make latitude and longitude an effective solution.").

[27]See "Communications Daily" at 8 (March 8, 1995). See also March 7, 1995 press release, "Northern Telecom Introduces Simplified, Affordable Enhanced 9-1-1 System Allowing Future Cellular Caller Location Capability for Small And Large Communities."

[28]Id.

[29]See Comments of State of New Jersey at ¶ 30.

currently scheduled to begin in September, 1995.[30] The State of New Jersey has indicated a willingness to accept the location data generated in this test, and to use it at its respective PSAPs to support wireless callers. ART is confident that many 911 organizations share the view expressed by the joint comments filed by Consumers First and the Ad Hoc Alliance For Public Access to 911, who state that "we believe that the proposed enhancements to 911 services will provide health, safety and welfare dividends at a cost which, while not insubstantial, is not disproportionate."[31]

V. AUTOMATIC LOCATION INFORMATION TECHNOLOGY FOR WIRELESS SYSTEMS IS TECHNOLOGICALLY VIABLE AND WILL BE COMMERCIALLY AVAILABLE

A. The Technological Choices Are Narrower Than Many Expect

As discussed above, cost factors make the modification of mobile handsets an unattractive option. Additionally, the most frequent suggestion for modification, using the satellite-based Global Positioning System ("GPS"), has severe shortcomings for indoor and urban use.[32] The measurement of power is generally considered to be highly inaccurate because there are many factors that contribute to the attenuation of power, of which distance is

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[30]For a detailed discussion of ART's Greater Philadelphia Beta Test, see ART Comments at 13-14.

[31]See Joint Comments of Consumers First and the Ad Hoc Alliance For Public Access to 911 at 1-2.

[32]See Notice at ¶ 46. See also Comments of KSI Inc. at Exhibit C, page 6.

only one factor. Therefore, it is simply not reliable.

The measurement of angle of arrival is another approach. This approach has been demonstrated to be much less accurate than the measurement of time difference of arrival ("TDOA"). In addition, angle of arrival systems would require the installation of antenna arrays at cell sites, a prospect that most carriers will find unappealing due to zoning and lease issues.

In contrast, the measurement of TDOA has been well documented in the literature as a superior approach to the location of radio signals. For example, GPS, while not universally effective, is a TDOA approach. ART has already constructed systems and collected sufficient data to demonstrate TDOA's effectiveness in both Rochester and Philadelphia.[33] ART's current work in TDOA is focused on reducing the implementation cost for carriers, which is a function of the choice of antenna types and mounting positions (both in the number and placement of cell sites and placement on each tower). ART has found that the accuracy of a system is highly dependent on the engineering of the system, much in the way that the quality of a cellular carrier's system has as much to do with system design as it does with the choice of the switch.[34]

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[33] See ART Comments at 11-13.

[34] In its comments, ART submitted just one technical article on the feasibility of location systems in urban environments. See ART Comments at Exhibit 3. Other technical material, both published and proprietary to ART, is available if the Commission were to visit an ART test site.

B. Location Technology Is Mature; It Is Only New To Cellular

The primary rationale used by a number of commenters to justify their objections to the imposition of a date certain ALI requirement is, in one form or another, that ALI technology is immature,[35] unproven,[36] and not yet commercially available.[37] In fact, location technology is mature -- it is only new to cellular. The skeptics ignore the fact that various entities, including ART, are already developing ALI systems that would meet all of the Commission's proposed requirements.[38] As described more fully in its comments, ART has developed and patented its TruePosition™ ALI system.[39]

Consistent with the Commission's goals, the TruePosition Location System is being designed to locate an anticipated 90% to

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[35]See CTIA Comments at 7 ("[T]he relevant technology is too immature to reliably serve as the basis for crafting current rules.").

[36]See Comments of AT&T Corp. at 19 ("[N]one of the ALI technologies listed in the Notice is sufficiently developed to assure that it can provide effective and efficient access to E911 within the time frames proposed by the Commission.").

[37]See Comments of Vanguard Cellular Systems, Inc. at 20 ("Current ALI technologies reflect various levels of maturity .... but few, if any, are commercially available today.").

[38]See "The Associated Group, Inc. Announces Development of TruePosition" (released February 2, 1995) and attached hereto as Exhibit 1. As the Commission is aware, numerous location systems exist or are being developed. A copy of a "Survey of Location Technologies to Support Mobile 9-1-1," conducted by C. J. Driscoll & Associates (October 11, 1994) has been placed in the record of this proceeding. See Notice at ¶47.

[39]See ART Comments at 7-14.

95% of transmissions with an expected accuracy of better than 400 to 500 feet.[40] Moreover, ART specifically stated in its comments that it is currently planning to make its TruePosition location system commercially available to cellular operators by mid-1996.[41]

The Associated Group, ART's parent, began its search for a location technology to meet several cellular application needs in the upstate New York cellular systems which it operated. When ART contacted potential partners to assist in the development of a location system, it discovered many organizations that expressed expertise and experience in the development of location technology. These firms were experienced in related fields, including Loran, GPS, Radio Astronomy, and others. While location for cellular systems has its own unique set of challenges, research and application of location technology has produced a sufficient body of knowledge to facilitate the rapid advancement of cellular specific equipment and software.

The pace of the development work for cellular systems has not been limited by the technical challenges, but rather by the perceived level of interest on the part of the industry to adopt the technology once it was implemented. When development dollars

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[40]More specifically, ART believes that it will be able to achieve the following accuracy goals:

90% of 911 calls located to 500 feet accuracy or better
75% of 911 calls located to 375 feet accuracy or better
50% of 911 calls located to 250 feet accuracy or better

[41]See ART Comments at 11.

have been expended, the technical challenges have been met and overcome at a regular pace. As market needs such as E911 have become apparent, ART and others have been willing to invest in research and development. The result of these efforts can be found in hundreds of patents and technical articles on the subject of location technologies.

Thus, suggestions that the necessary inventions have not yet occurred are simply not accurate. The challenge of deploying ALI technology for cellular is now at the stage of examining various configuration alternatives and minimizing the cost of deployment. From this point forward, the advances in technology are likely to be evolutionary and not revolutionary. Consequently, further delay is not likely to produce quantum leaps in technology.

ART is certainly not the only entity with ALI technology that will meet the industry's requirements and satisfy the Commission's policy objectives.[42] In light of the current stage of ALI technology as demonstrated by ART and others, any delay in the adoption of an ALI implementation plan is unnecessary, contrary to the public interest, and should be rejected.

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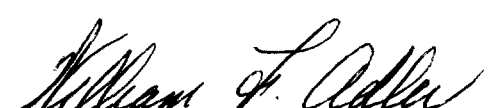
[42] See Comments of KSI, Inc., Smith Advanced Technology, Inc. and Terrapin Corporation. In addition, Lockheed Sanders recently announced the introduction of its "Smart Look" and "Micro Look" ALI systems. See Mobile Phone News at 3-4 (February 13, 1995).

VI. CONCLUSION

As stated in its original comments, ART strongly supports the Commission's efforts to ensure that mobile radio subscribers have the same access as wireline callers to emergency services. ART's research and testing demonstrates that ALI is technically and economically feasible. This conclusion is reinforced by comments submitted by other entities who are developing competing ALI systems. Accordingly, ART urges the Commission to adopt rules specifying the date certain adoption of an ALI requirement for wireless services while permitting the market to decide which technology will best achieve the broad objectives specified in the Notice.

Respectfully submitted,

ASSOCIATED RT, INC., A SUBSIDIARY OF THE ASSOCIATED GROUP, INC.

By: 
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